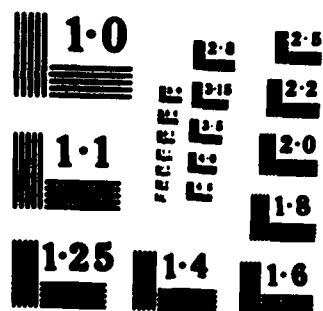


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INST OF ENVIRONMENTAL MEDICINE NATICK MA R F LARSEN
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Endoscopic Removal of a Foreign Body
From the Tracheobronchial Tree:
A New Technique

Running Title: Foreign Body Retrieval

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ABSTRACT

An aspirated tooth which could not be removed from the tracheobronchial tree using standard basket forceps was successfully retrieved using a new technique. This procedure employs the use of standard biopsy forceps in a unique fashion, facilitating prompt removal of the aspirated material without the requirement of specialized or expensive equipment.

Fiberoptic bronchoscopy has become an accepted method for the removal of aspirated foreign material from the tracheobronchial tree. Reported here is a method using standard biopsy forceps to dislodge an aspirated tooth which could not be removed with standard basket type or grasping forceps from a subsegmental bronchus.

Case Report

A 56-year old male with a history of chronic schizophrenia aspirated a carious lower bicuspid during routine tooth extraction under local anesthesia. Past medical history was significant for a 1 package per day smoking history of 30 years. Physical examination was significant for frequent paroxysms of unproductive cough. Chest roentgenogram demonstrated bilateral calcified granuloma on a tooth present in the proximal right lower lobe (Figure 1). Arterial blood gas on room air revealed pH 7.37, PaO_2 71 mmHg, PaCO_2 41 mmHg.

The patient was orally intubated with a 9 mm inner diameter endotracheal tube and fiberoptic bronchoscopy was performed using a standard instrument and technique (Model BFB2 Olympus Corporation, New Hyde Park, New York). The tooth was visualized firmly lodged in the right posterior basilar subsegment. Attempts at passing a basket forcep (OFG 17K Olympus Corporation, New Hyde Park, New York) were unsuccessful due to occlusion of the bronchial lumen by the tooth. The tooth was unable to be grasped using standard biopsys forceps (FB 14C Olympus Corporation, New Hyde Park, New York).

Three cc topical epinephrine were applied directly to the adjacent mucosa

and the biopsy forceps were carefully passed distal to the impacted tooth with no occurrence of bleeding. The forceps were then opened and retracted, lifting the tooth into a more proximal bronchus where it was successfully removed using a basket forceps in the conventional manner. After reintubation, the area was reexamined using the fiberoptic bronchoscope and residual edema and minor mucosal trauma were evident. No hemoptysis was noted over a 24-hour period of observation.

The procedure took 20 minutes to complete. A 7mm x 2 cm tooth was recovered.

Discussion

Rapid removal of potentially infected foreign objects such as aspirated teeth is particularly important in reducing the likelihood of broncho-pulmonary infections. It has been emphasized by Zavala and Rhodes that careful selection of the instrument used for foreign body removal from bronchi is imperative and that no one instrument is appropriate in all clinical settings.(1,2). Use of the Fogarty catheter for the removal of certain foreign bodies has been advocated when standard forceps are unable to adequately grasp the offending object. (3). Separation of the tip of the Fogarty catheter during foreign body removal is a reported complication of this technique. (4). In the present case, recognition of this potential complication and visualization of the firmly impacted tooth in an area of significant edema prompted a modification of the technique of Kamholz et al. (5). In the case reported by Kamholz et al. an aspirated atomizer tip was extracted from a bronchus by passing a 2mm biopsy forceps directly through the

orifice of the atomizer, then opening the forceps distal to the atomizer allowing entrapment and recovery of this object. In our patient, the mucosal edema adjacent to the aspirated tooth was too extensive to permit successful passage of a conventional basket forceps distally, but would allow the passage of the smaller biopsy forceps. Opening the forceps distal to the tooth allowed them to dislodge it when the forceps were retracted.

Potential complications of this technique include bronchial perforation, bleeding, or fracture of the forceps producing an additional foreign body distally. To safeguard against the latter, I recommend that the technique only be used in aspirations without significant inflammatory reaction or firmly established adhesions. Application of epinephrine to reduce local mucosal swelling is useful in the acute stage.

Direct visualization during this procedure is necessary to ensure that attempts do not result in further lodging the foreign body. An additional safeguard is to open the forceps first proximally to the lesion to ensure adequate airway diameter.

As with all procedures of this nature, retrieval of foreign bodies from the tracheobronchial tree should be undertaken by personnel skilled in bronchoscopy and with a full appreciation of the potential for morbidity. When correctly and promptly utilized this technique may effect the desired result with readily available bronchoscopic equipment in a very short period of time. It is also less expensive than if a Fogarty catheter is employed. Due to its simplicity this procedure can be performed in well equipped emergency area treatment rooms or endoscopy suites and does not incur operating room or anesthesia charges necessitated by rigid bronchoscopy.

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References:

1. Zavala DC, Rhodes ML: Foreign body removal: a new role for the fiberoptic bronchoscope. *Ann Otol Rhinol Laryngol* 84: 650, 1975.
2. Zavala DC, Rhodes M:: Experimental removal of foreign bodies by the fiberoptic bronchoscopy. *Am Rev Respir Dis* 110: 357, 1974.
3. Kosleske AM: The Fogarty balloon technique for the removal of foreign bodies from the tracheobronchial tree. *Surg Gyn Obstr* 155: 72, 1982.
4. Carpenter RJ, Snyder GG. A complication in the use of a Fogarty catheter for foreign body removal during bronchoscopic management. *Otolaryngol Head Neck Surgery* 89: 998, 1981.
5. Kamholz SL, Rothman NI, Underwood PS: Fiberbronchoscopic retrieval of iatrogenically introduced endobronchial foreign body. *Crit Care Med* 7:346, 1979.

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